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For Your Interest

Iowa Farm Science Editorial Board

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Cultivation, Herbicides Checked for Weed Control

Evaluations of various types of cultivating tools and herbicides to control weeds in corn were made in 1966 Iowa State University studies.

Harrowing after planting resulted in slightly better weed control, slightly better stands, and higher yields than not harrowing. Early shallow cultivations with a rotary hoe or a dragging hoe were successful substitutes for sweep-type row cultivations. Using disk tillers to replace one-half sweeps for early cultivations showed only slight improvement in weed control.

These results indicate most mechanical cultivations can control weeds if the operations are done at the proper time.

Soil incorporation methods were studied for pre-plant and preemergence applications of liquid and granular formulations of several corn and soybean herbicides. In corn, all chemicals improved weed control and increased yields when compared with the cultivated check plots.

Applications before and after corn planting were equally effective. Granular formulations were as effective as liquid types. Soil incorporation before or after planting did not increase the effectiveness of any of the compounds tested, and there were no differences among the various incorporation methods.

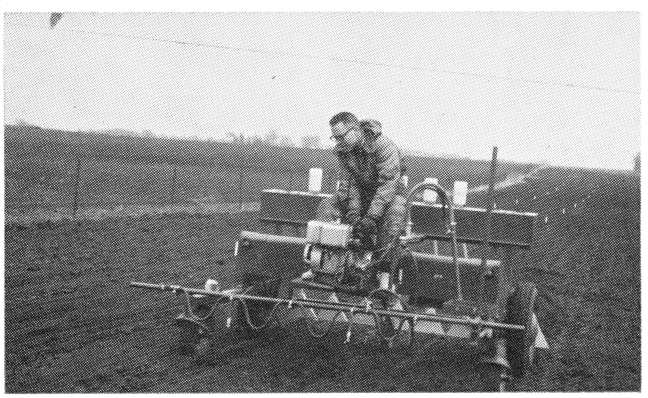
In soybeans, herbicides gave excellent grass control but little or no broadleaf control. Soil incorporation of Treflan before planting with a disk or a strip rotary tiller was more effective than incorporating after planting with a harrow or not incorporating.

With Amiben and Ramrod, weed control in beans was not improved with incorporation either before or after planting. Granular formulations gave slightly better weed control with all chemicals. These results indicate that liquid and granular formulations of most preemergence herbicides are equally effective and that soil incorporation will improve weed control for some compounds.

Herbicide screening tests for corn and soybeans were also made. Several combinations of compounds were tested and appear promising. Early postemergence applications of Atrazine and oil gave excellent weed control for the first time in several years. Rainfall shortly after application appears to make this treatment more effective.

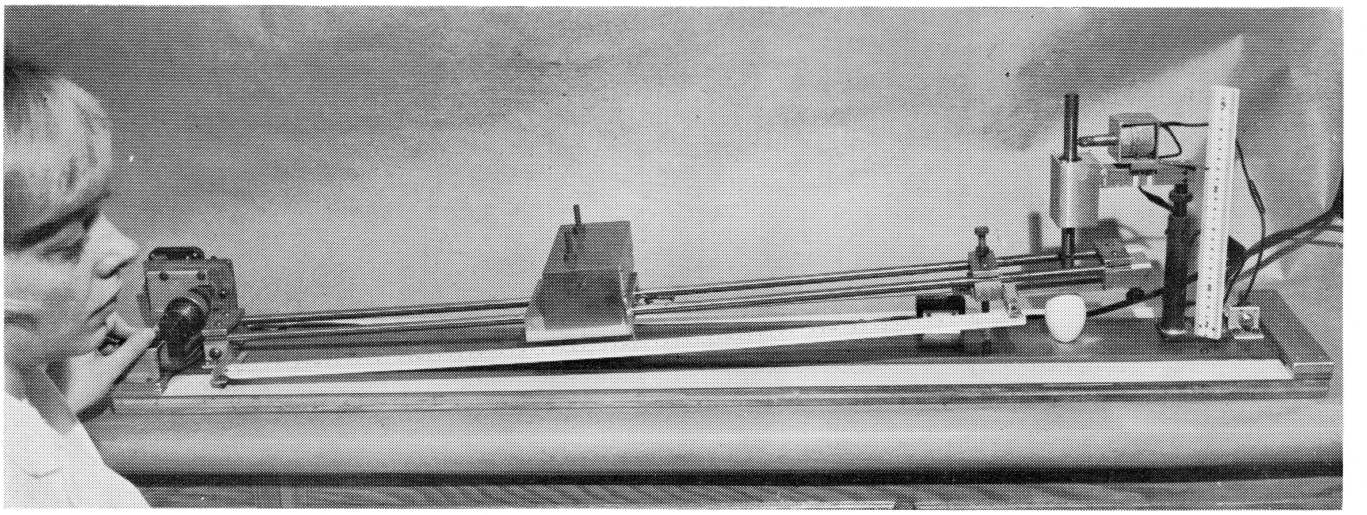
Early spring applications of herbicides on plowed and unplowed corn ground were as effective as applications at planting time. Some tillage operations just prior to planting improved the weed control obtained with Atrazine and Simazine sprays.

Conducting the studies were W. G. Lovely, C. W. Bockhop, W. F. Buchele, H. D. Currence, F. Wheaton, M. Molnau, and D. C. Erbach.



PLOT APPLICATION equipment used to apply liquid and granular formulations of herbicides for weed control in corn and soybeans.

ROTARY HOEING prior to corn emergence when weeds are just breaking the soil surface. Timeliness of operation is critical with this tool.



EGG SHELL strength tester developed at ISU is shown in operation.

Egg Shell Strength Tester Developed at ISU

An egg shell strength tester, a new aid to nutritional and management studies has been developed by Iowa State University poultry scientists.

The tester uses principles of dynamic or gradual loading. A weight is mechanically shifted along an inclined plane, thus applying greater pressure to the egg. The machine is stopped at the time that visible egg breakage occurs. Distance travelled is recorded or actual force required to break the egg is calculated.

In dynamic loading, the system is activated by a solenoid which releases a vertically positioned bar that strikes the egg.

Iowa State researchers conducting the study were W. W. Marion, W. J. Ross, and R. H. Forsythe.

Marbling Doesn't Affect Cholesterol Levels, Iowa State Studies Show

Cholesterol has recently attracted attention because of its suspected role in atherosclerosis (fat deposits on the lining of blood vessels) among humans. Levels of blood cholesterol are used, along with other criteria, to determine the susceptibility of humans to heart disease.

Animal products, because of their content of cholesterol and saturated fatty acids, have become suspect in the controversy over the cause of hardening of the arteries and heart disease.

More than half of the fatty acids in bovines are saturated. Because the cholesterol content of human arterial walls increases with age it might be expected that the cholesterol content of bovine muscles, containing capillaries and arteries, would increase as the animal aged.

To examine this question a study was performed by Marvin H. Stromer, Darrel E. Goll, and John H. Roberts at Iowa State University. The study was conducted to investigate the effect of maturity on cholesterol content in bovine lipid depots, and to determine the effect of marbling level on cholesterol content of the longissimus dorsi (back) muscle.

The data were derived from 72 beef carcasses of unknown history selected from a packing plant in Iowa. Selection was made by two of the authors and a federal meat grader. Carcasses were selected for 18 marbling-maturity groups according to USDA standards for beef carcasses. The marbling scores chosen were: moderately abundant (10% fat), slightly abundant, modest, small traces, and practically devoid (2.0% fat). The maturity groups were A (15-18 mos.), B (20-24 mos.), and F (over six years).

Subjective marbling scores were checked with chemical analysis.

Results of the cholesterol analysis indicate the cholesterol level of the external layer of fat was greater in the more mature cattle but does not increase until after cattle are over two years of age. Cholesterol levels of the outer layer of the subcutaneous fat increased between maturity classifications of yearling and 2-year old but did not show significant change thereafter.

No significant differences in cholesterol content were found among marbling scores in all three maturity groups. These results suggest that marbling is low in cholesterol and that most of the cholesterol in intra-muscular lipids originates from cell membranes and intracellular structures. High levels of cholesterol have been reported for these structures by the Council on Foods and Nutrition.

Experimental results indicate highly marbled beef does not contain more cholesterol than beef with lesser amounts of marbling. Also since the external layer of fat is not normally consumed, it appears that carcass maturity has very little effect on possible cholesterol intake as a result of eating beef, unless the beef is of very advanced maturity.

It is believed that cholesterol in food contributes to serum cholesterol levels in man and accelerates the disappearance of essential fatty acids. The ISU study shows, however, that marbled beef should not contribute to ingested cholesterol any more than beef with little marbling.